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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,282	11/17/2003	Michael Heuken	03345-P0043A	4870

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ST. ONGE STEWARD JOHNSTON & REENS, LLC
986 BEDFORD STREET
STAMFORD, CT 06905-5619

EXAMINER


MULPURI, SAVITRI

ART UNIT PAPER NUMBER

2812

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/715,282	Applicant(s) HEUKEN, MICHAEL 	
	Examiner Savitri Mulpuri	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15,16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the applicant's communication amending the claims, filed on 1/5/2005.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fielden et al (US 20020102749 A) in combination with Otsuka (5,438,952).

Fielden et al substantially teaches same process as similar to instant claimed process by forming reference layer (as calibration layer in instant claims); finding calibration parameters in preliminary tests by deviation in the layer properties for example thickness or stress, wherein calibration parameters are for deposition of active layer is function of the magnitude of the deviation values. Fielden also discloses sending the calibration parameter into electronic circuit (microprocessor) for storing. Fielden et al teaches sensors of both illumination system such as reflectometry or optical sensor such as photo detector or diffraction and detection system to monitor semiconductor process such as disposition by broadly disclosing chemical vapor deposition system, (see

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abstract and paragraphs 0402, 0438, 0089, 0157, 0551, 0344, 0372, 0547 in Fielden et al). However, Fielden specifically teaches growing epitaxial layer on Si, SiGe or GaAs substrates by vapor phase epitaxy (CVD). Fielden gives choice of using different growth techniques, may be MOCVD, which is one type vapor phase epitaxy. Epitaxial layer means substrate acts as seed substrate and epitaxial layer duplicates the crystallinity of the substrate for example Si layer/ Si substrate, SiGe layer/SiGe substrate or GaAs layer/GaAs substrate (see paragraphs (0157) and (0551)).

Fielden et al teaches growth techniques are not limited to CVD, MBE, LPE, and SPE but does not explicitly mention MOCVD including pyrolytic decomposition. Otsuka teaches MOCVD technique and growing GaAs active layer and pyrolytic decomposition at low temperature of 460 C and low pressure of 15 torr (see col. 6, lines 40-58). It would have been obvious to one of ordinary skill in the art to grow active layer through pyrolytic decomposition in the Fielden because Fielden gives a choice other growth techniques other CVD such as MOCVD, which requires pyrolytic decomposition as mentioned Otsuka for the benefit of growing epitaxial layer by MOCVD at low temperature and low pressure.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fielden in combination with Otsuka as applied to claims 1-13 above, and further in view of Donnelly (US 5,467,732)

Neither Fielden nor Otsuka teach using pyrometer for measuring temperature. Donnelly (US 5,467,732) teaches using pyrometer for measuring

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temperature along with thermocouple or interferometric thermometry (see col.2, lines 33-45). It would have been obvious to one of ordinary skill in the art to use pyrometer as a temperature-measuring device as alternative to optical sensors.

Response to Arguments

Applicant's arguments filed on 1/5/2005 have been fully considered but they are not persuasive. Applicant argues that Fielden neither teach nor suggest the use of decomposition products to form active layer. However, Fielden specifically teach growing epitaxial layer on Si, SiGe or GaAs substrates by vapor phase epitaxy (CVD). Fielden gives choice of using different growth techniques such as MOCVD, which is one type vapor phase epitaxy. Epitaxial layer means substrate acts as seed substrate and epitaxial layer duplicates the crystallinity of the substrate for example Si layer/ Si substrate, SiGe layer/SiGe substrate or GaAs layer/GaAs substrate (see paragraphs (0157) and (0551).

Applicant argues that the present invention provides a novel method of depositing an active layer in single run by predetermining process parameters and calibration parameters prior to depositing the layer of decomposed gaseous reactants, thus gaining the capability of modifying the active layer during run, which is achievable by growing calibration layer prior to deposition layer in the same process. However, Fielden et al substantially teaches same process as similar to instant claimed process by forming reference layer as similar to calibration layer in instant claims; finding calibration parameters in preliminary tests by deviation in the layer properties for example thickness or stress, wherein

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calibration parameters are for deposition of active layer and is function of the magnitude of the deviation values.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. The amendment to claims changing the scope of claims, in addition to arguments, claims were once again rejected.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number

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is 571-272-1677. The examiner can normally be reached on Monday to Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Niebling can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Savitri Mulpuri
Primary Examiner
Art Unit 2812